D H E C PROMOTE PROTECT PROSPER	Mining Form MR-500	S.C. DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL BUREAU OF LAND AND WASTE MANAGEMENT DIVISION OF MINING AND SOLID WASTE PERMITTING 2600 Bull Street, Columbia, SC 29201 Telephone Number: (803) 896-4261 Fax Number: (803) 896-4001

RECLAMATION PLAN
DHEC FORM 500 DATE VERSION ADOPTED 7/1/94

As required in Section 48-20-90 of the South Carolina Mining Act, "An operator shall submit with his application for an operating permit a proposed reclamation plan. The reclamation plan for an operating permit only must be furnished to the local soil and water conservation district in which the mining operation is to be conducted. The plan must include as a minimum each of the elements specified in the definition of 'reclamation plan' in Section 48-20-40 and information required by the department. The reclamation plan must provide that reclamation activities, particularly those relating to control of erosion, to the extent feasible, must be conducted simultaneously with mining operations and be initiated at the earliest practicable time after completion or termination of mining on a segment of the permitted land. The plan must provide that reclamation activities must be completed within two years after completion or termination of mining on each segment of the area for which an operation permit is requested unless a longer period specifically is permitted by the department."

I. APPLICANT INFORMATION

1. Name of Company: Murray Sand Company, LLC

2. Name of Proposed Mine: Woodland Plantation Mine County: Charleston

3. Home Office Address: 156 Checkerboard Land (843) 873-0416
(Street and P.O. Box) (Telephone No.)
Summerville SC 29483 843-873-0050
(City) (State) (Zip Code) (Fax No.)

4. Local Office Address: Same
(Street and P.O. Box) (Telephone No.)

(City) (State) (Zip Code) (Fax No.)

5. Name of company personnel and their title to be the contact for official business and correspondence: Laddie Smith, President

6. Location of Mine: Plowground Road S-10-1156 Charleston
State or County Hwy No. Nearest Town or City

II. ENVIRONMENTAL PROTECTION

1. Describe practices to protect adjacent resources such as roads, wildlife areas, woodland, cropland and others during mining and reclamation.
A 100' wide undisturbed vegetated (forested) buffer will be observed generally around the perimeter of the proposed mine. One area (see sttachments) will have a minimum 35' vegetated buffer between the mine and adjacent area. A 300' forested buffer will be maintained between mining and the adjacent residence.

2. Describe proposed methods to limit significant adverse effects on adjacent surface water and groundwater resources.
No groundwater resources will be pumped. Surface waters will be managed by pumping to a designated sediment pit, where sediments will naturally settle from the waters. Passive discharge will be accomplished across a vegetated swale toward lower elevations. Hay bales and/or filter cloth will be utilized in the swale as necessary.

3. Describe proposed methods to limit significant adverse effects on known significant cultural or historic sites within the proposed permitted area.
There are no known significant cultural or historic sites within the proposed permitted area.

4. Describe method to prevent or eliminate conditions that could be hazardous to animal or fish life in or adjacent to the permitted area.

There are no activities anticipated for active mining that would be hazardous to wildlife. Conversely, the area will generate a significant pond that will promote a new diversity of wildlife for the area.

5. Describe how applicant will comply with State air quality and water quality standards as established by the S.C. Department of Health and Environmental Control.

Trees within the proposed mine site were clear-cut and related stockpiles of wooden debris have been removed prior to this request. No debris burning is anticipated. The proposed vegetated buffers and surface water handling measures will be utilized to address noise and water quality issues.

III. RECLAMATION OF AFFECTED AREA

6. State useful purpose(s) the affected land is being proposed for reclamation. More than one purpose may be checked, but information should be submitted to support the feasibility for each proposed purpose.

a. Lake or pond ☑ _____ f. Grassland ☐ _____

b. Agriculture ☐ _____ g. Recreation ☑ _____

c. Woodlands ☐ _____ h. Wetlands ☐ _____

d. Residential ☐ _____ i. Park ☐ _____

e. Commercial ☐ _____ j. Other ☐ _____

7. State the final maximum surface gradient(s) (slope) in soil, sand, or other unconsolidated materials on reclaimed land. Surface gradients steeper than 3H:1V (18 degrees or 33 percent) may be required to submit geotechnical data and studies to demonstrate that the steeper slopes will remain stable following final reclamation.

The reclaimed pit will have side slopes graded to a maximum of 3H:1V .

8. How will the final slopes in unconsolidated material be accomplished? If the slope will be by backfilling, demonstrate that there is adequate material to accomplish the stated final gradient. If gradient is to be achieved by bringing in material from outside the permitted area, state the nature of the material and approximate quantities. If the gradient is to be achieved by grading, show that there is adequate area for grading to achieve gradient (i.e., adequate distance between the property line and edge of highwall). Operator should show calculations or other appropriate information to demonstrate that there is adequate materials in backfilling and grading to meet the requirements for final slope.

Final slopes will be reclaimed by grading and backfill of residual overburden materials left after screening for top soil. Please see the attached sheets.

9. Describe the plan for revegetation or other surface treatment of affected area(s). The revegetation plan shall include but not be limited to the following: (a) planned soil test; (b) site preparation and fertilization; (c) seed or plant selection; (d) rate of seeding or amount of planting per acre; (e) maintenance.

Preliminary soil testing will be done according to Clemson University standards and subsequent lime/fertilizer will be incorporated 2" deep as necessary in an adequately prepared surface to adjust the soil ph to 5.5 - 6.5. Initial revegetation of affected areas will be accomplished through top seeding with appropriate (for the season) annual grass species at a rate of at least 1 bushel per surface acre. Annual grasses will be re-supplied to bare areas as necessary until the site vegetates naturally.

10. Provide, as a separate document, a closure plan of the mine and permitted facilities to prevent a release of contaminants from being harmful to the environment. A closure plan is not necessary for all mines, but is required where the possibility exists for (a) acid rock drainage; (b) where the National Pollutant Discharge Elimination Systems (NPDES) Permit has discharge limitation parameters other than pH and Total Suspended Solids (TSS); (c) chemically treated tailings or stockpiles (excludes fertilizer or lime for revegetation purposes).

A closure plan is not anticipated for this proposed activity. The most critical issue with this activity will be sediment management. Proposed remedies should be sufficient to handle anticipated sediments.

11. Method of control of contaminants and disposal of mine waste soil, rock, mineral, scrap, tailings, slimes, and other material directly connected with the mining, cleaning, and preparation of mineral substances mined and includes all waste materials deposited on or in the permit area from any source.

There will be no significant woody debris after mining. Some residual woody debris may be placed in the active pit to serve as habitat structure for introduced fishes. Residual overburden materials not utilized as top soil will be incorporated as backfill during reclamation of the side slopes, with subsequent soil testing and adjustment of the soil reaction by additions of necessary lime/fertilizers.

12. Method of reclaiming settling and/or sediment ponds.

The sediment pit will be incorporated into the active mine pit in the final stages of active mining.

13. Describe method of restoration or establishment of stream channels, stream banks and site drainage to a condition minimizing erosion, siltation and other pollution.

The mine site contains no areas considered jurisdictional by CESAC regulatory. Please see the attached jurisdictional determination.

14. What are the maintenance plans to insure that the reclamation practices established on the affected land will not deteriorate before released by the Department?

The mine site will be inspected regularly, especially after significant precipitation events to monitor possible erosion of side slopes and other disturbed areas. Remedial activities such as re-grading, re-seeding, introduction of filter cloth/hay bales/hydro-seeding will be implemented as necessary. Several deep re-charge holes will be excavated in the active pit to help with inundation of the resulting pond.

15. For final reclamation, submit information about practices to provide for safety to persons and to adjoining property in all excavations. Identify areas of potential danger (vertical walls, unstable slopes, unstable surface on clay slimes, etc.) and provide appropriate safety provisions. These provisions can include but are not limited to setbacks, fencing,

The active mine will be 0.6 mile from Plowground Road. A gate will be constructed at the entrance to the haul road to deter unauthorized persons. Flagging tape will be placed along all areas, especially around the top of the slope at the reclaimed pit to deter access to unstable/unsafe areas.

16. What provisions will be taken to prevent noxious, odious, or foul pools of water from collecting and remaining on the mined area? For mines to be reclaimed as lakes or ponds, provide supporting information that a minimum water depth of four (4) feet on at least fifty percent (50%) of the pond surface area can be maintained.

Pools of water within the active mine will be pumped to the sediment pond for settling. The initial ground water strata is typically found within 30' of the surface in the proposed area. Re-charge holes will be dug to facilitate adequate inundation prior to final reclamation.

17. Identify any structures (e.g. buildings, roads) that are proposed to remain as part of final reclamation. Provide justification for leaving any structures.

The existing woods road that will be used as a haul road will be left at least in its original condition at final reclamation. No buildings are present and none are anticipated for construction.

18. Attach <u>two (2)</u> copies of a map of the area (referred to as the RECLAMATION MAP) that shows the reclamation practices and conservation practices to be implemented. The following should be shown:

A. The outline of the proposed final limits of the excavation during the number of years for which the permit is requested.

B. The approximate final surface gradient(s) and contour(s) of the area to be reclaimed. This would include the sides and bottoms of mines reclaimed ponds and lakes.

C. The outline of the tailings disposal area.

D. The outline of disposal areas for spoil and refuse (exclusive of tailings ponds).

E. The approximate location of the mean shore line of any impoundment or water body and inlet and/or outlet structures which will remain upon final reclamation.

F. The approximate locations of access roads, haul roads, ramps or buildings which will remain upon final reclamation.

G. The approximate locations of various vegetative treatments.

H. The proposed locations of re-established streams, ditches or drainage channels to provide for site drainage.

I. The proposed locations of diversions, terraces, silt fences, brush barriers or other Best Management Practices to be used for preventing or controlling erosion and off-site siltation.

J. Proposed locations of the measures to provide safety to persons and adjoining property.

K. Segments of the mine that can be mined and reclaimed as an ongoing basis.

L. The boundaries of the permitted area.

M. The boundaries of the affected area for the anticipated life of the mine.

N. The boundaries of the 100-year floodplain, where appropriate.

O. Identify sections of mine where the final surface gradient will be achieved by grading and/or backfilling.

P. A legend showing the name of the applicant, the name of the proposed mine, the north arrow, the county, the scale, the date of preparation and the name and title of the person who prepared the map.

THE REQUIRED RECLAMATION MAP SHALL HAVE A NEAT, LEGIBLE APPEARANCE AND BE OF SUFFICIENT SCALE TO CLEARLY SHOW THE REQUIRED INFORMATION LISTED ABOVE. THE BASE FOR THE MAP SHALL BE EITHER A SPECIALLY PREPARED LINE DRAWING, AERIAL PHOTOGRAPH, ENLARGED USGS TOPOGRAPHIC MAP OR A RECENTLY PREPARED PLAT. RECLAMATION MAP SHOULD BE THE SAME SCALE USED FOR THE SITE MAP.

IV. SCHEDULE FOR IMPLEMENTATION OF CONSERVATION AND RECLAMATION PRACTICES

19. As stated in Section 48-20-90 of the S.C. Mining Act, reclamation activities, to the extent feasible, must be conducted simultaneously with mining operations. Identify which areas or segments of the mine are <u>not</u> feasible to reclaim simultaneously with mining. Provide reasons why reclamation can not proceed simultaneously with mining in these areas.

20. Section 48-20-40(16)(l) of the S.C. Mining Act requires a "time schedule, including the anticipated years for completion of reclamation by segments." This time schedule should meet the requirements of Section 48-20-90 of the Mining Act.

SCHEDULE FOR IMPLEMENTING CONSERVATION AND RECLAMATION PRACTICES

Conservation & Reclamation Practices	Segment # or Area	Planned		*Applied		Notes
		Amount	Year	Amount	Month/Year	
Survey Project Area	Site		2008			Done
Wetlands investigation	Site + 150'		2008/09			Done
CESAC JD Concurrence	Site		2009			Done
Const. Gate/Signs	Haul Road		2009			
Const.Silt Fencing	As needed		2008/2009			Done
Sediment Pit Const.	As needed		beginning			
Stockpile overburden	continuing		throughout			
Stockpile materials	continuing		throughout			
Maintain Haul Road	Haul Road		2008-End			
Mon.Outfall @ Sed.Pit	Sed. Pit		2009-End			
Reclaim slopes	Active Pit		2009-End			
Final Grading	Haul Road		End 2014			
Final reclamation	Active Pit		End 2014			
Soil test fert/lime	Haul Road		End Ongoing or 2014			
Grade & Seed	Haul Road		End 2014 or ongoing			
Soil test fert/lime	Site		End 2014 or ongoing			
Monitor	Entire Site		throughout			
Remedial activities	Entire Site		as needed			
DHEC reporting	Site		annually			
DHEC release	Entire Site		END			
(ID Sign. Trees	Site		2008			Done)

* Completed by the Department

20. Section 48-20-40(16)(l) of the S.C. Mining Act requires a "time schedule, including the anticipated years for completion of reclamation by segments." This time schedule should meet the requirements of Section 48-20-90 of the Mining Act.

SCHEDULE FOR IMPLEMENTING CONSERVATION AND RECLAMATION PRACTICES

Conservation & Reclamation Practices	Segment # or Area	Planned		*Applied		Notes
		Amount	Year	Amount	Month/Year	

* Completed by the Department

YOU ARE NOTIFIED THAT:

1) You, the operator, must file an application to modify the reclamation plan in the event actual reclamation varies from the set forth hereinabove; *and*

2) If at any time it appears to the Department that the activities under the reclamation plan are failing to achieve the purposes and requirements of the S.C. Mining Act, the Department may modify the RECLAMATION PLAN in accordance to Section 48-20-150.

Signature of Applicant/Operator or his Authorized Representative

Printed Name of Applicant/Operator or his Authorized Representative

President

Title

Date

Department Use Only

Permit No.: _____ Date Application Approved: _____ Date Bond Rec'd: _____

Bond Amount: _____ Blanket or Single Bond: _____ Permit Issuance Date: _____

ACTION TAKEN ON THIS RECLAMATION PLAN

_____ Approved _____ Denied _____ Approved with Additional Terms and Conditions

By: _____
DIVISION DIRECTOR

Date: _____